

[SYSTEMS AND METHODS FOR LOCALIZING AND ANALYZING SAMPLES ON A BIO-SENSOR CHIP

Abstract of Disclosure

Chips that include one or more particle manipulation mechanisms, or force transduction elements, provided at specific locations to manipulate and localize particles proximal the substrate surface. In one embodiment, individually addressable magnetic control mechanisms such as electric coils are provided at specific locations to create a magnetic field to attract magnetic particles, such a magnetic or magnetizable beads, to those specific locations. In another embodiment, electrostatic control mechanisms such as electrodes are provided to attract and manipulate electrically charged micro-particles. A location may include a crater or well formed in the substrate, or it may include an element on the surface of the substrate. In some embodiments, one or more sensors are located proximal specific locations, *e.g.*, specific craters, so as to analyze specific conditions at each location. In other embodiments, multiple locations share one or more sensors.